CLAIMS

What is claimed is:

1. An apparatus, comprising:

a housing having a plurality of ports, each of the plurality of ports to receive a fiber;

a plurality of collimating lenses disposed within the housing, each of the plurality of collimating lenses to receive a light beam from a corresponding port of the plurality of ports; and

a beamsplitter coupled to the plurality of collimating lenses to receive the light beam from each of the plurality of collimating lenses, the beamsplitter having a common optical aperture disposed on an outer surface area to simultaneously receive the light beams received from each of the plurality of collimating lenses.

2. The apparatus of claim 1, wherein the beamsplitter comprises a prism.

3. The apparatus of claim 2, wherein the prism is a rhombic prism.

4. The apparatus of claim 1, wherein the beamsplitter comprises a single reflective polarizer plate.

5. The apparatus of claim 2, wherein the beamsplitter has an inner surface and the light beams has a P-polarized and a S-polarized component, and wherein the beamsplitter has a coating on the inner

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surface to separate the S-polarized and P-polarized components of the light beam into spatially separate beams.

6. The apparatus of claim 2, wherein the plurality of ports comprises a first input port and a second input port, the plurality of collimating lenses comprises a first collimating lens and a second collimating lens, and wherein the beamsplitter is coupled to receive a first light beam from the first collimating lens and a second light beam from the second collimating lens.

7. The apparatus of claim 6, wherein each of the first and second light beams have a P-polarized and a S-polarized component, and wherein the beamsplitter has a coating to separate the S-polarized and P-polarized components of each of the first and second light beams into spatially separate beams.

8. The apparatus of claim 7, wherein the beamsplitter comprises a reflective element to receive the S-polarized beam of each of the first and second light beams and direct the S-polarized beams to respective output collimating lenses.

9. The apparatus of claim 7, wherein the beamsplitter is configured to propagate the P-polarized beam of each of the first and second light beams to respective output collimating lenses.

10. The apparatus of claim 2, wherein the beamsplitter is constructed from a high index glass material.

11. The apparatus of claim 10, wherein the plurality of ports comprises first, second, third, and fourth input ports and first and second output ports, and wherein the beamsplitter is coupled to receive S-polarized light from the first and third input ports and P-polarized light from the second and fourth input ports, the beamsplitter to combine S-polarized light from the first input port with P-polarized light from the third input port, the beamsplitter to combine S-polarized light from the second input port with P-polarized light from the fourth input port.

12. The apparatus of claim 11, wherein the propagation of light from each of the input ports is substantially parallel to each other.

13. The apparatus of claim 1, wherein the housing has a length of less than approximately 65 millimeters.

14. The apparatus of claim 1, wherein the plurality of collimating lenses are GRIN lenses.

15. The apparatus of claim 1, wherein the housing is constructed of aluminum.

16. The apparatus of claim 1, wherein the housing is constructed of a material to thermally match the common optical aperture.

17. The apparatus of claim 4, wherein the outer surface of the beamsplitter has an anti-reflection coating disposed thereon.

18. The apparatus of claim 1, wherein the plurality of ports is arranged in a one dimensional linear array.

19. The apparatus of claim 1, wherein the plurality of ports is arranged in a two dimensional array.

20. The apparatus of claim 19, wherein the two dimensional array forms a hexagonal pattern.

21. The apparatus of claim 2, wherein the prism is constructed from a material comprising birefringent crystal material.

22. An apparatus, comprising:

a housing having a plurality of ports, each of the plurality of ports to receive a fiber;

a plurality of GRIN lenses disposed within the housing, each of the plurality of GRIN lenses to receive a light beam from a corresponding port of the plurality of ports; and

a prism having a common optical aperture disposed on an outer surface area, the common optical aperture coupled to the plurality of GRIN lenses to receive the light beam from each of the plurality of GRIN lenses, the common optical aperture to simultaneously operate on the light beams received from each of the plurality of GRIN lenses and wherein the rhombic prism has an inner surface and the light beams have a P-polarized and a S-polarized component, and wherein the beamsplitter has a coating on the inner surface to separate the S-polarized and P-polarized components of the light beam into spatially separate beams.

23. A method, comprising:

receiving a plurality of input light beams by a single device having a common optical aperture; and

spatially separating each of the plurality of input light beams using the common optical aperture.

24. The method of claim 23, wherein receiving comprises collimating each of the plurality of input light beams to the common optical aperture.

25. The method of claim 23, wherein spatially separating comprises reflecting a S-polarized component of each of the plurality of light beams and refracting a P-polarized component of each of the plurality of light beams.

26. The method of claim 25, further comprising reflecting each of the S-polarized component of each of the plurality of input light beams towards a corresponding output port and propagating the P-polarized component of each of the plurality of light beams to another corresponding port.

27. The method of claim 26, further comprising focusing each of the S-polarized and P-polarized components into respective output fibers.

28. An apparatus, comprising:

means for receiving a plurality of input light beams by a single device having a common optical aperture; and

means for spatially separating each of the plurality of input light beams using the common optical aperture.

29. The apparatus of claim 28, wherein receiving comprises collimating each of the plurality of input light beams to the common optical aperture, and wherein spatially separating comprises reflecting a S-polarized component of each of the plurality of light beams and refracting a P-polarized component of each of the plurality of light beams.

30. The apparatus of claim 29, further comprising means for reflecting each of the S-polarized component of each of the plurality of input light beams towards a corresponding output port and propagating the P-polarized component of each of the plurality of light beams to another corresponding port.

31. The apparatus of claim 30, further comprising means for focusing each of the S-polarized and P-polarized components into respective output fibers.